IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) An illumination apparatus illuminating a specific objective illumination region, comprising:

a plurality of illuminants having light-emitting surfaces radiating diffused light;

an illuminant substrate in which the illuminants are disposed so as to be set in array on a circumference;

at least one optical member configured to guide the diffused light to the specific objective illumination region;

a movable section configured to drive the optical member so as to be rotatable around a center of the circumference serving as a rotation center; and

a lighting control section configured to control a periodic successive light-emitting timing of the plurality of illuminants, wherein

the at least one optical member is adapted to guide the light from the illuminants in a common direction in order to illuminate the specific objective illumination region, and

the movable section and the lighting control section operate together such that a quantity of light per unit time of the diffused light guided to the specific objective illumination region is within a predetermined range.

2. (Original) The apparatus according to claim 1, wherein the lighting control section lights the illuminants whose light-emitting surfaces are positioned at an area on the illuminant substrate which is guided by the optical member.

3. (Original) The apparatus according to claim 2, wherein a number of the illuminants which are lit is always the same number.

4. (Previously presented) The apparatus according to claim 1, wherein

the number of the illuminants disposed on the illuminant substrate is an odd number,

two optical members are provided and are made to be one set, wherein at least one set is provided, and

the optical members of the set guides the diffused light radiated at a position on the circumference which is point symmetrical with respect to the rotation center, to the specific objective illumination region.

5. (Previously presented) The apparatus according to claim 1, wherein

the number of the illuminants disposed on the illuminant substrate is an even number,

two optical members are provided and are made to be one set, wherein at least one set is provided, and

the optical members of the set guides the diffused light radiated from the illuminant positioned at a position which is point symmetrical with respect to the rotation center, to the specific objective illumination region.

6. (Original) The apparatus according to claim 1, further comprising:

a radiating section configured to radiate heat generated by the plurality of illuminants; and

a radiating exhaust member configured to exhaust air contacting with the radiating section, wherein

a driving force source moving the radiating exhaust member and the movable section are the same motor.

7. (Original) The apparatus according to claim 6, wherein the radiating exhaust member includes a centrifugal fan generating the flow of air by rotation of the motor.

8. (Original) The apparatus according to claim 7, wherein the centrifugal fan includes a scirocco fan.

9. (Original) The apparatus according to claim 1, wherein antireflection processing is applied to a surface on which the diffused light which is not incident to the optical member is illuminated.

10. (Original) The apparatus according to claim 1, wherein light shield processing is applied to prevent the diffused light which is not incident to the optical member from leaking out of the apparatus.

11. (Original) The apparatus according to claim 1, wherein light guiding members configured to guide the diffused light radiated by the illuminant to the optical member are disposed for the respective illuminants.

12. (Original) The apparatus according to claim 11, wherein outgoing end surfaces of the light guiding members radiating light with respect to the optical member are disposed without space on a circumference whose diameter is smaller than that of the circumference.

13. (Original) The apparatus according to claim 12, wherein the light guiding members include tapered rods.

14. (Original) The apparatus according to claim 11, wherein

the incident surface of the optical member is smaller than the light-emitting surfaces of the respective illuminants,

the light guiding member includes:

a NA conversion section configured to make an NA to which the outgoing light from the light-emitting surface is incident small; and

an inverted tapered rod to which the ray whose NA is made small by the NA conversion section is incident, and

the inverted tapered rod is a rod in which a size of the outgoing surface thereof is the substantially same size as the incident surface of the optical member, and the outgoing surface thereof is smaller than the incident surface.

15. (Original) The apparatus according to claim 14, wherein the NA conversion section includes a tapered rod.

16. (Original) The apparatus according to claim 14, wherein the NA conversion section includes a microprism array.

17. (Original) The apparatus according to claim 14, wherein

the NA conversion section includes a plurality light guiding prisms disposed in the vicinity of the illuminant in the positional relationship so as to be point symmetrical with respect to the center of the illuminant, and

the light guiding prism includes:

an incident surface configured to make the outgoing light from the illuminant be incident;

a reflecting surface configured to reflect the light incident from the incident surface and guiding the light in the prism to a predetermined direction; and

an outgoing surface configured to radiate the light guided at the reflecting surface.

18. (Original) The apparatus according to claim 17, wherein the reflecting surface has a surface shape satisfying the conditions that the light incident from the incident surface is reflected.

19. (Original) The apparatus according to claim 17, wherein reflection coating reflecting the light incident from the incident surface is applied on the reflecting surface.

20. (Original) The apparatus according to claim 17, wherein reflection coating is applied on surfaces which face the other light guiding prisms and which are other than the incident surface, the reflecting surface, and outgoing surface, among the surfaces structuring the light guiding prism.

21. (Original) The apparatus according to claim 17, wherein a rear surface of the reflecting surface structuring the light guiding prism has a surface shape satisfying conditions that the outgoing light from the illuminant which is not incident to the incident surface which is a surface structuring the light guiding prism is reflected.

22. (Original) The apparatus according to claim 17, wherein reflection coating reflecting the outgoing light from the illuminant which is not incident to the

incident surface which is a surface structuring the light guiding prism is applied on the rear surface of the reflecting surface structuring the light guiding prism.

23. (Original) The apparatus according to claim 1, further comprising:

a light quantity monitor configured to detect the quantity of the light radiated from the optical member, wherein

the movable section and the lighting control section operate together such that the quantity of light detected by the light quantity monitor is substantially constant.

24. (Original) The apparatus according to claim 23, further comprising:

a microreflecting prism configured to reflect the light radiated from the optical member; and

a light guiding plate configured to guide the light reflected by the microreflecting prism, to the light quantity monitor.

25. (Original) The apparatus according to claim 1, wherein

the plurality of illuminants are disposed so as to be set in array on double circumferences, and

the at least one optical member is disposed so as to correspond to the respective double circumferences.

26. (Original) The apparatus according to claim 1, wherein the optical member includes a tapered rod in which an area of the outgoing end surface thereof is larger than an area of the incident end surface thereof.

27. (Currently amended) The apparatus according to claim 1, further comprising:

a second optical member to which the light radiated from the outgoing end surfaces of the plurality of optical member are incident, wherein

the second optical member includes a tapered rod, the tapered rod being fixed to the illuminant substrate and having an outgoing end surface shape which is the substantially same shape as a shape of the specific objective illumination region.

28. (Original) The apparatus according to claim 1, wherein the outgoing end surface of the optical member is one of a polygon and a circular in which the rotation center of the movable section serves as the center thereof.

29. (Currently amended) An illumination apparatus illuminating a specific objective illumination region, comprising:

a plurality of illuminants having light-emitting surfaces radiating diffused light;

an illuminant substrate in which the illuminants are disposed so as to be set in array on a circumference;

at least one optical member configured to guide the diffused light to the specific objective illumination region;

a movable section configured to drive the optical member so as to be rotatable around a center of the circumference serving as a rotation center; and

a lighting control section configured to control a periodic successive light-emitting timing of the plurality of illuminants, wherein

the at least one optical member is adapted to guide the light from the illuminants in a common direction in order to illuminate the specific objective illumination region, and

the movable section and the lighting control section operate together such that an area of the light-emitting surface emitting the diffused light for the light

guided to the specific objective illumination region is within a predetermined range in variations in time.

30. (Original) The apparatus according to claim 29, wherein the lighting control section lights the illuminants whose light-emitting surfaces are positioned at an area on the illuminant substrate which is guided by the optical member.

31. (Original) The apparatus according to claim 30, wherein a number of the illuminants which are lit is always the same number.

32. (Previously presented) The apparatus according to claim 29, wherein

the number of the illuminants disposed on the illuminant substrate is an odd number,

two optical members are provided and are made to be one set, wherein at least one set is provided, and

the optical members of the set guides the diffused light radiated at a position on the circumference which is point symmetrical with respect to the rotation center, to the specific objective illumination region.

33. (Previously presented) The apparatus according to claim 29, wherein

the number of the illuminants disposed on the illuminant substrate is an even number,

two optical members are provided and are made to be one set, wherein at least one set is provided, and

the optical members of the set guides the diffused light radiated from the illuminant positioned at a position which is point symmetrical with respect to the rotation center, to the specific objective illumination region.

34. (Original) The apparatus according to claim 29, further comprising:

a radiating section configured to radiate heat generated by the plurality of illuminants; and

a radiating exhaust member configured to exhaust air contacting with the radiating section, wherein

a driving force source moving the radiating exhaust member and the movable section are the same motor.

35. (Original) The apparatus according to claim 34, wherein the radiating exhaust member includes a centrifugal fan generating the flow of air by rotation of the motor.

36. (Original) The apparatus according to claim 35, wherein the centrifugal fan includes a scirocco fan.

37. (Original) The apparatus according to claim 29, wherein antireflection processing is applied to a surface on which the diffused light which is not incident to the optical member is illuminated.

38. (Original) The apparatus according to claim 29, wherein light shield processing is applied to prevent the diffused light which is not incident to the optical member from leaking out of the apparatus.

39. (Original) The apparatus according to claim 29, wherein light guiding members configured to guide the diffused light radiated by the illuminant to the optical member are disposed for the respective illuminants.

40. (Original) The apparatus according to claim 39, wherein outgoing end surfaces of the light guiding members radiating light with respect to the optical member are disposed without space on a circumference whose diameter is smaller than that of the circumference.

41. (Original) The apparatus according to claim 40, wherein the light guiding members include tapered rods.

42. (Original) The apparatus according to claim 39, wherein

the incident surface of the optical member is smaller than the light-emitting surfaces of the respective illuminants,

the light guiding member includes:

a NA conversion section configured to make an NA to which the outgoing light from the light-emitting surface is incident small; and

an inverted tapered rod to which the ray whose NA is made small by the NA conversion section is incident, and

the inverted tapered rod is a rod in which a size of the outgoing surface thereof is the substantially same size as the incident surface of the optical member, and the outgoing surface thereof is smaller than the incident surface.

43. (Original) The apparatus according to claim 42, wherein the NA conversion section includes a tapered rod.

44. (Original) The apparatus according to claim 42, wherein the NA conversion section includes a microprism array.

45. (Original) The apparatus according to claim 42, wherein

the NA conversion section includes a plurality light guiding prisms disposed in the vicinity of the illuminant in the positional relationship so as to be point symmetrical with respect to the center of the illuminant, and

the light guiding prism includes:

an incident surface configured to make the outgoing light from the illuminant be incident;

a reflecting surface configured to reflect the light incident from the incident surface and guiding the light in the prism to a predetermined direction; and

an outgoing surface configured to radiate the light guided at the reflecting surface.

46. (Original) The apparatus according to claim 45, wherein the reflecting surface has a surface shape satisfying the conditions that the light incident from the incident surface is reflected.

47. (Original) The apparatus according to claim 45, wherein reflection coating reflecting the light incident from the incident surface is applied on the reflecting surface.

48. (Original) The apparatus according to claim 45, wherein reflection coating is applied on surfaces which face the other light guiding prisms and which are other than the incident surface, the reflecting surface, and outgoing surface, among the surfaces structuring the light guiding prism.

49. (Original) The apparatus according to claim 45, wherein a rear surface of the reflecting surface structuring the light guiding prism has a surface shape satisfying conditions that the outgoing light from the illuminant which is not

incident to the incident surface which is a surface structuring the light guiding prism is reflected.

50. (Original) The apparatus according to claim 45, wherein reflection coating reflecting the outgoing light from the illuminant which is not incident to the incident surface which is a surface structuring the light guiding prism is applied on the rear surface of the reflecting surface structuring the light guiding prism.

51. (Original) The apparatus according to claim 29, further comprising:

a light quantity monitor configured to detect the quantity of the light radiated from the optical member, wherein

the movable section and the lighting control section operate together such that the quantity of light detected by the light quantity monitor is substantially constant.

52. (Original) The apparatus according to claim 51, further comprising:

a microreflecting prism configured to reflect the light radiated from the optical member; and

a light guiding plate configured to guide the light reflected by the microreflecting prism, to the light quantity monitor.

53. (Original) The apparatus according to claim 29, wherein

the plurality of illuminants are disposed so as to be set in array on double circumferences, and

the at least one optical member is disposed so as to correspond to the respective double circumferences.

54. (Original) The apparatus according to claim 29, wherein the optical member includes a tapered rod in which an area of the outgoing end surface thereof is larger than an area of the incident end surface thereof.

55. (Currently amended) The apparatus according to claim 29, further comprising:

a second optical member to which the light radiated from the outgoing end surfaces of the plurality of optical member are incident, wherein

the second optical member includes a tapered rod, the tapered rod being fixed to the illuminant substrate and having an outgoing end surface shape which is the substantially same shape as a shape of the specific objective illumination region.

56. (Original) The apparatus according to claim 29, wherein the outgoing end surface of the optical member is one of a polygon and a circular in which the rotation center of the movable section serves as the center thereof.

57. (Previously presented) An illumination apparatus illuminating an objective illumination region, comprising:

a plurality of illuminants having light-emitting surfaces radiating diffused light;

an illuminant substrate in which the illuminants are disposed so as to be set in array on a circumference;

a plurality of optical members which each have incident end surfaces and outgoing end surfaces, and which are configured to radiate the diffused light incident from the incident end surfaces and guide the diffused light to the objective illumination region;

a movable section configured to drive the plurality of optical members so as to be rotatable around a center of the circumference serving as a rotation center; and

a lighting control section configured to control a light-emitting timing of the plurality of illuminants, wherein

the respective outgoing end surfaces of the plurality of optical members are in rotation symmetrical relationship with respect to the center of the circumference.

58. (Original) The apparatus according to claim 57, wherein the outgoing end surface of the optical member has a rectangular shape in which the sides facing the center of the circumference are the long sides.

59. (Original) The apparatus according to claim 57, wherein

the incident end surface of the optical member is a rectangular shape having the long sides in a direction of arranging of the illuminants which are set in array on the illuminant substrate, and

the outgoing end surface of the optical member has a rectangular shape in which the lengths of the respective sides of the corresponding incident end surface are made longer.

60. (Previously presented) The apparatus according to claim 57, wherein the plurality of optical members includes a tapered rod in which an area of the outgoing end surface thereof is larger than an area of the incident end surface thereof.

61. (Original) The apparatus according to claim 57, further comprising:

a second optical member to which the light radiated from the outgoing end surfaces of the plurality of optical member are incident, wherein

the second optical member includes a tapered rod, the tapered rod being fixed to the illuminant substrate and having an outgoing end surface shape which is the substantially same shape as a shape of the objective illumination region.

62. (Original) The apparatus according to claim 57, wherein the outgoing end surface of the optical member is one of a polygon and a circular in which the rotation center of the movable section serves as the center thereof.

63. (Currently amended) An image projection apparatus comprising:

an illumination apparatus configured to illuminate a specific objective illumination region, the illumination apparatus including:

a plurality of illuminants having light-emitting surfaces radiating diffused light;

an illuminant substrate in which the illuminants are disposed so as to be set in array on a circumference;

at least one optical member configured to guide the diffused light to the specific objective illumination region;

a movable section configured to drive the optical member so as to be rotatable around a center of the circumference serving as a rotation center; and

a lighting control section configured to control a periodic successive light-emitting timing of the plurality of illuminants, wherein

the at least one optical member is adapted to guide the light from the illuminants in a common direction in order to illuminate the specific objective illumination region, and

the movable section and the lighting control section operate together such that the quantity of light per unit time of the diffused light guided to the specific objective illumination region is within a predetermined range;

a display device disposed at an objective irradiation region of the illumination apparatus; and

a projection lens configured to project an image formed at the display device on a screen.

64. (Currently amended) An image projection apparatus comprising:

an illumination apparatus configured to illuminate a specific objective illumination region, the illumination apparatus including:

a plurality of illuminants having light-emitting surfaces radiating diffused light;

an illuminant substrate in which the illuminants are disposed so as to be set in array on a circumference;

at least one optical member configured to guide the diffused light to the specific objective illumination region;

a movable section configured to drive the at least one optical member so as to be rotatable around a center of the circumference serving as a rotation center; and

a lighting control section configured to control a periodic successive light-emitting timing of the plurality of illuminants, wherein

the at least one optical member is adapted to guide the light from the illuminants in a common direction in order [[t]] to illuminate the specific objective illumination region, and

the movable section and the lighting control section operate together such that an area of the light-emitting surface emitting the diffused light for the light guided to the illumination region is within a predetermined range in variations in time;

a display device disposed at an objective irradiation region of the illumination apparatus; and

a projection lens configured to project an image formed at the display device on a screen.

65. (Previously presented) An image projection apparatus comprising:

an illumination apparatus configured to illuminate an objective illumination region, the illumination apparatus including:

a plurality of illuminants having light-emitting surfaces radiating diffused light;

an illuminant substrate in which the illuminants are disposed so as to be set in array on a circumference;

a plurality of optical members which each have incident end surfaces and outgoing end surfaces, and which are configured to radiate the diffused light incident from the incident end surfaces and guide the diffused light to the objective illumination region;

a movable section configured to drive the plurality of optical members so as to be rotatable around a center of the circumference serving as a rotation center; and

a lighting control section configured to control a light-emitting timing of the plurality of illuminants, wherein

the respective outgoing end surfaces of the plurality of optical members are in rotation symmetrical relationship with respect to a center of the circumference;

a display device disposed at an objective irradiation region of the illumination apparatus; and

a projection lens configured to project an image formed at the display device on a screen.

66-71. (Cancelled)

72. (Currently amended) An illumination apparatus illuminating a specific objective illumination region, comprising:

a plurality of illuminants having light-emitting surfaces radiating diffused light;

an illuminant substrate in which the illuminants are disposed so as to be set in array on a circumference;

at least one optical means for guiding the diffused light to the specific objective illumination region;

movable means for driving the optical means so as to be rotatable around a center of the circumference serving as a rotation center; and

lighting control means for controlling a periodic successive light-emitting timing of the plurality of illuminants, wherein

the optical means are adapted to guide the lights from the illuminants in a common direction in order to illuminate the specific objective illumination region, and

the movable means and the lighting control means operate together such that a quantity of light per unit time of the diffused light guided to the specific objective illumination region is within a predetermined range.

73. (Currently amended) An illumination apparatus illuminating a specific objective illumination region, comprising:

a plurality of illuminants having light-emitting surfaces radiating diffused light;

an illuminant substrate in which the illuminants are disposed so as to be set in array on a circumference;

at least one optical means for guiding the diffused light to the specific objective illumination region;

movable means for driving the at least one optical means so as to be rotatable around a center of the circumference serving as a rotation center; and

lighting control means for controlling a periodic successive light-emitting timing of the plurality of illuminants, wherein

the optical means are adapted to guide the lights from the illuminants in a common direction in order to illuminate the specific objective illumination region, and

the movable means and the lighting control means operate together such that an area of the light-emitting surface emitting the diffused light for the light guided to the illumination region is within a predetermined range in variations in time.

74. (Previously presented) An illumination apparatus illuminating an objective illumination region, comprising:

a plurality of illuminants having light-emitting surfaces radiating diffused light;

an illuminant substrate in which the illuminants are disposed so as to be set in array on a circumference;

a plurality of optical means which each have incident end surfaces and outgoing end surfaces for radiating the diffused light incident from the incident end surfaces and guiding the diffused light to the objective illumination region;

movable means for driving the plurality of optical means so as to be rotatable around a center of the circumference serving as a rotation center; and

lighting control means for controlling a light-emitting timing of the plurality of illuminants, wherein

the respective outgoing end surfaces of the plurality of optical means are in rotation symmetrical relationship with respect to the center of the circumference.

75. (Previously presented) An image projection apparatus comprising:

an illumination apparatus for illuminating a specific objective illumination region, the illumination apparatus including:

a plurality of illuminants having light-emitting surfaces radiating diffused light;

an illuminant substrate in which the illuminants are disposed so as to be set in array on a circumference;

at least one optical means for guiding the diffused light to the specific objective illumination region;

movable means for driving the optical means so as to be rotatable around a center of the circumference serving as a rotation center; and

lighting control means for controlling a periodic successive light-emitting timing of the plurality of illuminants, wherein

the optical means are adapted to guide the lights from the illuminants in a common direction in order to illuminate the specific objective illumination region, and

the movable means and the lighting control means operate together such that a quantity of light per unit time of the diffused light guided to the specific objective illumination region is within a predetermined range;

a display device disposed at an objective irradiation region of the illumination apparatus; and

a projection lens for projecting an image formed at the display device on a screen.

76. (Previously presented) An image projection apparatus comprising:

an illumination apparatus for illuminating a specific objective illumination region, the illumination apparatus including:

a plurality of illuminants having light-emitting surfaces radiating diffused light;

an illuminant substrate in which the illuminants are disposed so as to be set in array on a circumference;

at least one optical means for guiding the diffused light to the specific objective illumination region;

movable means for driving the at least one optical means so as to be rotatable around a center of the circumference serving as a rotation center; and

lighting control means for controlling a periodic successive light-emitting timing of the plurality of illuminants, wherein

the optical means are adapted to guide the lights from the illuminants in a common direction in order to illuminate the specific objective illumination region, and

the movable means and the lighting control means operate together such that an area of the light-emitting surface emitting the diffused light for the light guided to the illumination region is within a predetermined range in variations in time;

a display device disposed at an objective irradiation region of the illumination apparatus; and

a projection lens for projecting an image formed at the display device on a screen.

77. (Previously presented) An image projection apparatus comprising:

an illumination apparatus for illuminating an objective illumination region, the illumination apparatus including:

a plurality of illuminants having light-emitting surfaces radiating diffused light;

an illuminant substrate in which the illuminants are disposed so as to be set in array on a circumference;

a plurality of optical means which each have incident end surfaces and outgoing end surfaces for radiating the diffused light incident from the incident end surfaces and guiding the diffused light to the objective illumination region;

movable means for driving the plurality of optical means so as to be rotatable around a center of the circumference serving as a rotation center; and

lighting control means for controlling a light-emitting timing of the plurality of illuminants, wherein

the respective outgoing end surfaces of the plurality of optical means are in rotation symmetrical relationship with respect to the center of the circumference;

a display device disposed at an objective irradiation region of the illumination apparatus; and

a projection lens for projecting an image formed at the display device on a screen.

78. (Previously presented) The apparatus according to claim 1, wherein the optical member comprises an optical rod.

79. (Previously presented) The apparatus according to claim 29, wherein the optical member comprises an optical rod.